
AC 2011-1426: BEST PRACTICES IN K-12 ENGINEERING – ASSESSMENTS OF PARTICIPANT OUTCOMES

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Best Practices Panel – Assessment in K-12 Engineering Education and Outreach

In September 2009, the National Academy of Engineering released the report from the committee tasked with determining the state of engineering in K-12 education.¹ A simplified summary of that report is that many well-meaning people are active in a variety of ways promoting and teaching engineering in K-12, but little is known about what programs or activities are most successful or how or why they are successful. Formal and informal programs, programs that work with students, programs that work with teachers, programs meant to inform, inspire, and educate about engineering, programs that use engineering context or problem-solving to teach literacy, mathematics, and science content -- these are some of the varied threads in the tapestry of K-12 engineering education. Some programs are evaluated on effectiveness by counting how many students or teachers participate. Some programs measure changes in student's or adult's awareness and knowledge of engineering as a discipline or potential career. Some, but few, programs assess changes in knowledge of the content, processes and skills developed through engineering, either in design, technology, or the "traditional" core content areas. Few programs use a random-control methodology; some use a quasi-experimental approach with a matched comparison group; most use pre- and post-assessments.

In 2008, the K-12 and Pre-College Engineering (K-12E) division of the American Society for Engineering Education (ASEE) began requiring paper authors submitting for the annual conference to include assessment or evaluation data for their programs. Since that time, the executive committee observed that many authors with outstanding programs seem to have an ill-conceived notion of what comprises quality assessment and evaluation.

Given the growing national emphasis on K-12 engineering, the paucity of quality data to support claims, and the trend among authors submitting to the K-12E division, the K-12E division is planning a *Best Practices in K-12 Engineering -- Assessment of Participant Outcomes* symposium within their program at the 2011 American Society for Engineering Education Annual Conference and Exposition in June 2011.

Presenters from the 2011 ASEE K-12 and Pre-College Engineering program with outstanding assessment practices will be invited to sit on a panel to share their strategies and methods. Part of the K-12 Division's mission is to promote building a professional community and advancing scholarship. Through this special session, the Division will promote those objectives.

A representative from each paper selected will be invited to be a panel member during this special session of the conference. During the 1.5 hour session, each representative will have ten minutes to describe their project's assessment plan. The remaining time will be for discussions with the audience about their plans, assessment strategies, issues and obstacles overcome, or issues and obstacles remaining.